SYSTEM FOR INSPECTING A FLAT SHEET WORKPIECE

ABSTRACT

An inspection system for automatically scanning, documenting and verifying the perimeters and hole dimensions of flat sheet metal workpieces.

The system includes an inspection table with a transparent surface upon which a workpiece is placed. A servomotor controlled rack and pinion gear driven carriage, which travels along the table on rails in the X direction. The carriage consists of a shelf above the table containing a fluorescent tube lamp for back illuminating the flat sheet part, and a shelf below the table surface containing an optical/sensor imaging array module which travels on rails cross the width of the carriage in the Y direction servo driven via a ball screw drive. The optical sensor imaging array is responsive to light energy, detecting and processing light-to-dark and dark-to-light transitions as it scans across the workpiece, the scan transition addresses being representative of the location of the edges of the perimeter and holes of the workpiece. The X and Y-axis transition edge data is processed and stored in a microcomputer for subsequent processing, display, and print out.